



STEAMING AHEAD

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Houston Chemical and Petrochemical Facilities Share Best Practices

"Networking is the number one word for company success and spreading best practices" is the take-home message from an energy managers workshop in Houston, TX on April 4. Specifically benefitting area chemical and petroleum companies, attendees to the "Best Practices for the Year 2000 and Beyond" came from Exxon-Mobil, DuPont, Huntsman Chemical, Shell Oil, Dow Chemical, and BP Amoco.

Attendees were introduced to the results of industry collaboration with the Department of Energy. Together, industry and DOE have identified the priority areas for process and production improvement for several manufacturing sectors. For chemical and petroleum, these priorities are:

Petroleum Refining

Energy and Process Efficiency

- Fouling mitigation in heat exchangers
- Improved real-time process measurements
- Improved fuel conversion efficiencies and Biocatalysis

Environment

- Standard method for risk assessment
- Improved system for leak detection
- Cost-effective MTBE clean-up
- Database for PM 2.5 emission factors

Chemicals

Catalysis

Higher selectivity; More moderate pressure and temperature; Reduced number of unit operations

Computational Chemistry

Advance theory and modeling on quantum scale, atomistic, mesoscale, and bridging techniques

Computational Fluid Dynamics

Turbulent, reacting flow; Multiphase flow; and Viscoelastic polymer flow

Materials of Construction

New materials for high temperature and corrosive environments; Control, prediction and monitoring technology.

Separations

New adsorbent materials; Improved distillation and crystallization modeling; extraction interfacial and physical property data; Improved efficiency and process integration of membranes

Of interest were some ways to get industrial funding from the Department of Energy to support manufacturing process and production improvement:

1. Plant energy use profiling cost-share agreement
A 50% cost-share, up to \$100,000, is available for industrial plant-wide assessments to identify opportunities to improve energy and resource productivity. Awards are made to the companies that own and operate the facility to be assessed. However, a proposal project team may include design engineering firms, equipment manufacturers, utilities, energy service companies, state energy offices, or research institutes.
2. Technology Research and Development proposals
Specific technologies and processes for research and development, like those listed above for chemicals and petroleum refining, have been targeted by manufacturers. DOE periodically offers partially funding for the research and development.

"I'm flabbergasted by the amount of information available", said Clint Satterly of Huntsman Chemical after seeing the tip sheets, case studies, and technical resources and assistance available. "Petroleum should give the biggest bang for the buck", declared Billy Barnett of Exxon-Mobil about energy-saving case studies. "We need to get something going."

Christopher Russell of the Alliance to Save Energy offered pointers for constructing project proposals to upper company management. In covering the benefits of steam system improvements and a process for justifying projects (see table), he stated the manner in which projects are pitched is key. He suggests that project proposers "ask for the opportunity to increase operating revenues" in talking with the finance department.

<i>Benefits of Steam System Improvements</i>	<i>Proposal Process</i>
More competitive cost margins	Identify potential projects
Increased sales margin	Prioritize through life-cycle costing
Higher Return on Assets	Draft a plan of action
More Value to Shareholders	Show the effect of the project on business financial performance

Organizations that sponsor workshops are "our right arm", said Fred Hart of the Department of Energy. "You can lean on them to find out what information and resources are available from the government" At this particular workshop, sponsor Spirax Sarco highlighted the value of networking, training, and partnerships between companies to identify energy savings projects and best practices.

"For DuPont, steam was part of a \$5 million annualized per year of process improvement by putting together a program and staying committed to it." attested Glenn Hahn. Specific examples in steam system management included the DuPont Steam Trap Users Group and their Corporate Energy Leadership Team. These are two communication networks set up by DuPont to share common experiences and distribute employee expertise. This benefits all their facilities, helping ensure smooth production and company operations.

Sponsor Nalco Chemical covered the best practices and benchmarking procedures in water treatment. The "combined experience of Nalco" along with EPRI and ASME were organized to determine the situations and applications for best boiler performance. Metrics and benchmarking help provide a roadmap to "optimize treatment choices, system performance, and overall operations", said Debbie Bloom of Nalco.

Possibly the most motivating presentation was made by the presenter who was not able to attend. The Mobil Energy Management Network, headed by Fred Schoeneborn, produced a video on the power and benefits of sharing energy successes throughout a company, all the way from the refining facility to the service station.

"The goal is to save 5% of energy costs - \$25 million per year!" said Schoeneborn in the video. Mobil employees strongly felt the network gives them a role in providing value to the customer while saving the company money. Energy savings for Mobil totalled \$30 million in 1998. "The Energy Management Network is one of the best examples to share best practices . . . it's important for the bottom line", said former Mobil president and CEO Eugene Renna.

I ETC a Rousing Success

Over 160 attendees came to the Industrial Energy Technology Conference, held in Houston on April 5th and 6th. High-interest topics and cutting energy issues facing the U.S and industry were covered in panel presentations, including three sessions devoted to steam systems (see below).

<i>Selected Sessions</i>	<i>Selected Topics</i>
System-Wide Approaches to Energy Efficiency	<p>"Cascading Goals and Objectives for Accountability and Action" from Bristol-Myers Squibb</p> <p>"Environment and Energy Management from the Ground-Up" from Essential Foods</p> <p>"3M's Corporate Approach to Energy Management"</p>
Benchmarking of Industrial Operations	<p>"Issues and Challenges in Energy Benchmarking"</p> <p>"Corporate Energy Management: A Survey of Large Manufacturing Companies"</p> <p>"Outlook for Energy Benchmarking" from the EPA.</p> <p>"Achieving Maximum Sustainable Bottom-Line Benefit from Energy Management"</p>
Efficient Steam Systems	<p>"Celanese Chemicals Energy Projects Assessment and Implementation"</p> <p>"Steam Efficiency: Impacts from Boilers to the Boardroom"</p> <p>"Steam Condensation-Induced Waterhammer"</p> <p>"Steam Conservation and Boiler Plant Efficiency Advancements" at Texas Instruments</p> <p>"Steam Management – the 3M Approach"</p> <p>"Enbridge Consumers Gas 'Steam Savers' Program (Performance and Projects from 30 Steam Plant Audits)"</p>

Steam BestPractices	<p>"Implementation of Boiler Best Practices"</p> <p>"Backpressure Steam Cogeneration: A History and Review of the 'Cheapest Power You'll Never Buy'"</p> <p>"Steam BestPractices Resources and Tools: Old News is New News !"</p> <p>"Virtual Workshops: Using Today's Networking Tools to Train Tomorrow's Experts"</p>
The New World of Computing Solutions	<p>"HEATMAP – The International Standard for Modeling Combined Heat and Power Systems"</p> <p>"Sunoco's Experience with the ClimateWise Environmental Database and Tracking Software"</p> <p>"Rule-based Energy Management System"</p> <p>"Total Cost Accounting Through Site Assistance Visits"</p>
Other:	<p>"Benchmarking Findings Related to Energy, Material, Water Use, and Pollutants"</p> <p>"Implementing MSE (Management System for Energy) 2000: Procedures"</p>

The conference opened with a keynote delivered by Edwin Mongan, Manager of Environmental Stewardship at DuPont, who covered DuPont's worldwide initiatives to improve his company's performance for the benefit of society. DuPont has set a goal to reduce greenhouse gas emissions by 65% and hold energy consumption flat, compared with 1990 levels. Later in the day, attendees also heard from Waters Davis, the President of Reliant Energy.

An awards ceremony on the second day recognized Dr. Jigah Shah for his international energy conservation work in with Pace Global Energy Services and EPRI. Dr. Shah was key in establishing partnerships between industry and electric utilities to provide resources and adopt novel approaches to improving productivity. Air Products and Chemicals was the other awardee for their development of a low-temperature refrigeration system that uses air rather than synthetic chemicals as a coolant.

To receive copies of any of the papers, contact Jim Eggebrecht at (979) 845-1508.

Insulation in Focus at World Insulation and Acoustic Congress

The World Insulation and Acoustic Congress, held in Orlando, FL on April 12-15, brought together the major players in insulation manufacturing, contracting, and distribution. Conducted by the National Insulation Association (NIA), featured sessions discussed:

- Winning global solutions for providing energy
- Harmonization of international standards
- NIA's Energy Appraisal program and its benefits for those in the insulation industry

Alliance President David Nemtzw spoke at the World Insulation and Acoustical Congress in Orlando, Florida among other high-level company executives and industry experts. The audience of U.S. and international insulation manufacturers and contractors enthusiastically received Nemtzw's message from his presentation entitled "Making Dollars (and Sense) of Steam Efficiency." His presentation addressed the energy savings potential presented by industrial insulation opportunities and its equivalent dollar value of insulation product.

WIACO illustrated the National Insulation Association's "Growing the Insulation Industry Program" initiative and the Alliance's role in ensuring that insulation and other technologies are considered as opportunities to improve economically and reduce emissions. Contact NIA at (703) 683-6480 for more information.

NEW: Tip Sheets, and Case Studies

Now available on the www.oit.doe.gov/steam website are:

Tip Sheets

- [Recover Heat from Boiler Blowdown](#)

Case Studies

- [Vulcan Materials Company saves \\$42,000 annually through distillation column reboiler demand reduction](#)
- [Velsicol Chemical saves \\$80,000 annually through condensate return and steam trap maintenance](#)
- [Texas Petrochemical saves \\$2,300,000 annually through steam turbine upgrade](#)

The OIT Clearinghouse has additional tip sheets and can be contacted for more information

Application Engineer Job Announcement

From Yarway:

APPLICATION ENGINEER

We have a key engineering position open within our Steam Trap Division. We are seeking a BSME with 1-5 years experience with steam systems/steam traps and strong computer literacy skills. The duties include technical product review of inquiries/specifications and customer sales support. The position is based in Blue Bell, PA, about 25 miles west of Philadelphia with some travel required. It offers a compensation plan and benefits package.

Yarway is a manufacturer of specialty control valves for the power generation and process worldwide markets. Please fax your resume, stating salary requirements, to Personnel Department, Fax No. 610-832-2467, email to lhoulahan@tycoepg.com or mail it to:

YARWAY CORPORATION
P. O. BOX 350
BLUE BELL, PA 19422

Upcoming Events

Pittsburgh Regional Steel Technology Showcase	5/4/00	Pittsburgh, PA	DOE-OIT Steel Team, (800) OIT-7967
Capturing the Value of Steam Efficiency	5/11/2000	Portland, OR	Northwest Natural Gas, (503) 721-2472
Clean Power 2000 Expo	5/15/2000	Trenton, NJ	NJ Office of Sustainable Business, (609) 633-3655
New Century, New Opportunities	5/17-19/2000	Houston, TX	National Association of Energy Service Companies, (202) 822-0950
International District Energy Association Conference and Trade Show	6/10-13/2000	Montreal, Quebec	IDEA, (202) 429-5111
AWMA Annual Meeting	6/18-22/2000	Salt Lake City, UT	Air and Waste Management Association, (412) 232-3444